

Theme 4: Technology Transfer and Outreach

Tom LeFebvre



Weather Information Display Systems



GSD Impacts on Forecast Services

- A few months ago, GSD hosted a workshop consisting of a diverse set of stakeholders
- We produced a movie to emphasize that everyone's input is valuable
- As you watch the movie, keep in mind that GSD technology plays a vital role in the forecast process



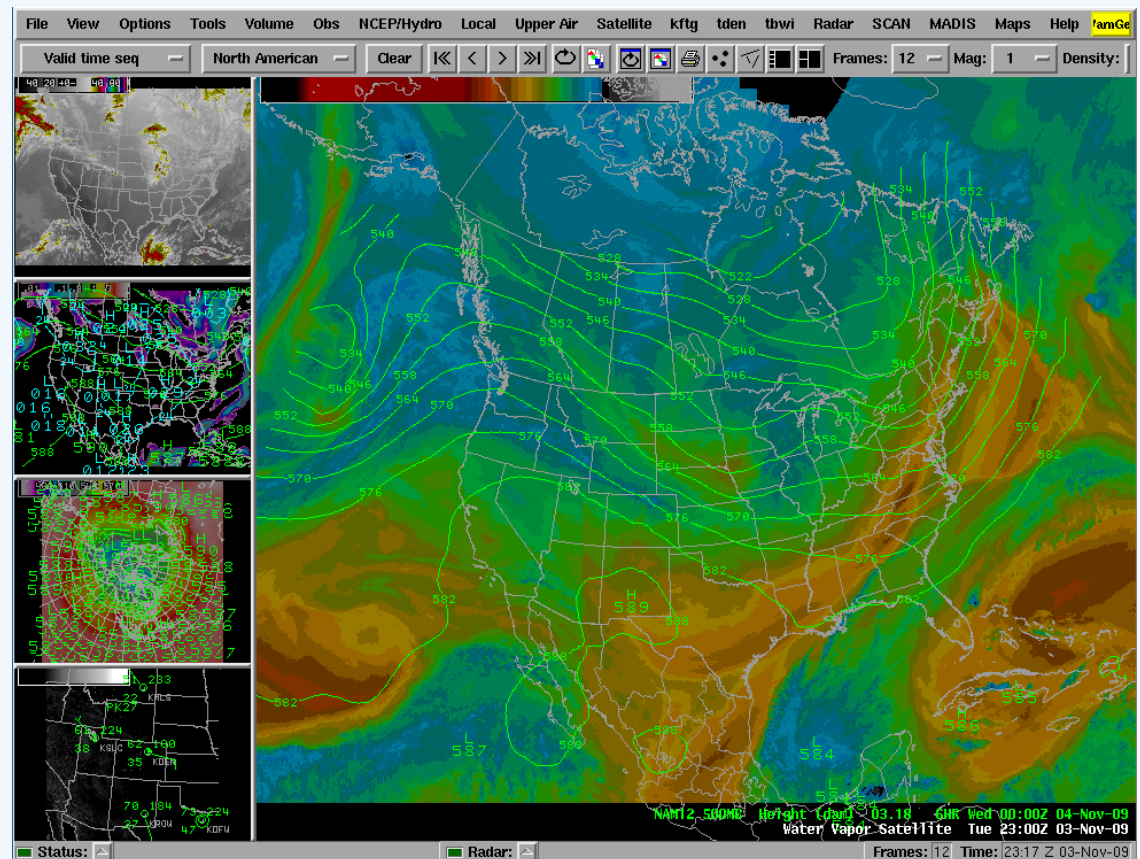
GSD Impacts on Forecast Services

- GSD Technology has changed Weather Forecast Services
 - Advanced Interactive Weather Processing System (AWIPS)
 - Graphical Forecast Editor (GFE)
 - FX-Net
 - FX-Collaborate (FX-C)
 - Weather Information Decision Aids (WIDA)



AWIPS

- AWIPS Workstation
 - Built for National Weather Service
 - Integrates dozens of meteorological data sets
 - Primary System Used by NWS Forecasters





AWIPS - Impacts

- Decreased Warning Generation Time
 - From several minutes to less than one minute
 - Combined Meteorological Data Sets
 - Enhances forecaster comprehension
 - Forecasters able to assimilate more data
 - Improved forecasts
- Quotes from WFO Forecasters . . .
 - “It’s fantastic to be able to get this [many data sources] on one workstation.”
 - “We could not have conducted such an efficient warning operation without NEXRAD and AWIPS.”
 - “[After AWIPS] nationwide tornado lead times more than doubled from less than 4 minutes to more than 11 minutes.”





AWIPS – Graphical Forecast Editor (GFE)

- AWIPS – Graphical Forecast Editor (GFE)

Text Products

to

Digital Products

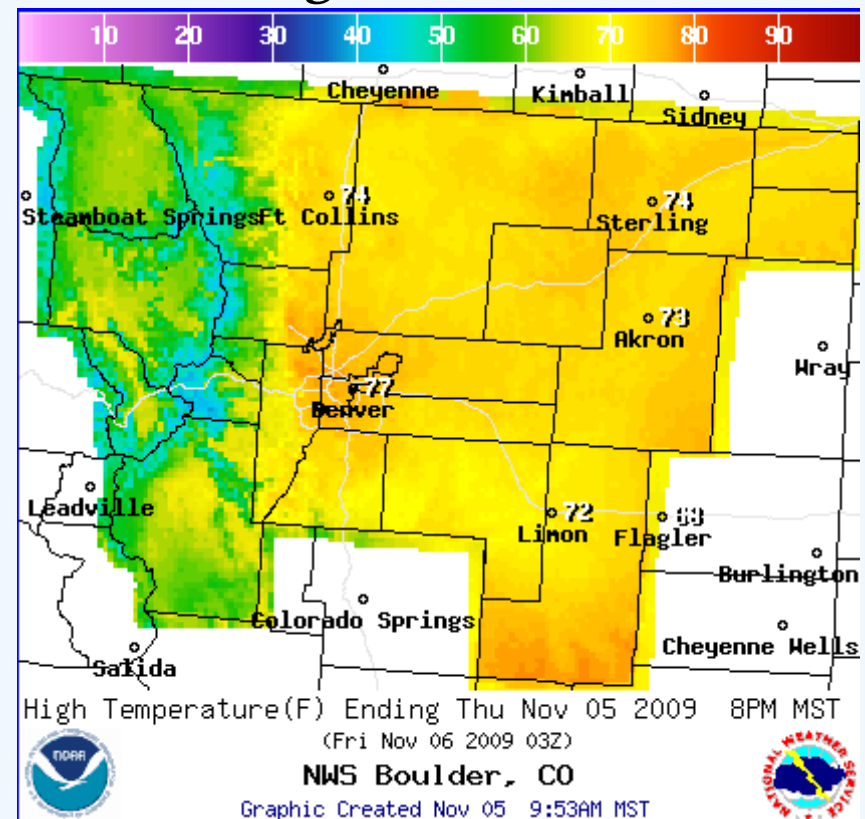
NWS City Forecast For:

BOULDER AND WESTERN DENVER SUBURBS

ZONE FORECASTS FOR NORTHEAST AND NORTH CENTRAL COLORADO
NATIONAL WEATHER SERVICE DENVER CO
437 AM MST THU NOV 05 2009

COZ039-052300-
BOULDER AND JEFFERSON COUNTIES BELOW 6000 FEET/WEST BROOMFIELD
COUNTY -
INCLUDING ARVADA...BOULDER...GOLDEN...LAKEWOOD...LONGMONT
437 AM MST THU NOV 05 2009

.TODAY...MOSTLY SUNNY. HIGHS IN THE MID TO UPPER 70S. WEST WINDS 10
TO 15 MPH.
.TONIGHT...MOSTLY CLEAR. LOWS 39 TO 49. WEST WINDS 10 TO 20 MPH...
WITH GUSTS UP TO 35 MPH NEAR THE FOOTHILLS AFTER MIDNIGHT.
.FRIDAY...SUNNY. HIGHS IN THE LOWER 70S. WEST WINDS 15 TO 25 MPH.
.FRIDAY NIGHT...PARTLY CLOUDY. LOWS 38 TO 46. WEST WINDS 10 TO
15 MPH.
.SATURDAY...SUNNY. HIGHS IN THE MID 60S.
.SATURDAY NIGHT...MOSTLY CLEAR. LOWS IN THE UPPER 30S.
.SUNDAY AND SUNDAY NIGHT...MOSTLY CLOUDY. A 10 PERCENT CHANCE OF
RAIN SHOWERS AND SNOW SHOWERS. HIGHS IN THE UPPER 50S. LOWS IN THE
LOWER 30S.
.MONDAY AND MONDAY NIGHT...MOSTLY CLOUDY WITH A 20 PERCENT CHANCE
OF RAIN SHOWERS AND SNOW SHOWERS. HIGHS IN THE MID 40S. LOWS IN
THE UPPER 20S.
.TUESDAY AND TUESDAY NIGHT...PARTLY CLOUDY. HIGHS IN THE UPPER
50S. LOWS AROUND 30.
.VETERANS DAY...MOSTLY SUNNY. HIGHS IN THE MID 50S.





GFE - Impacts

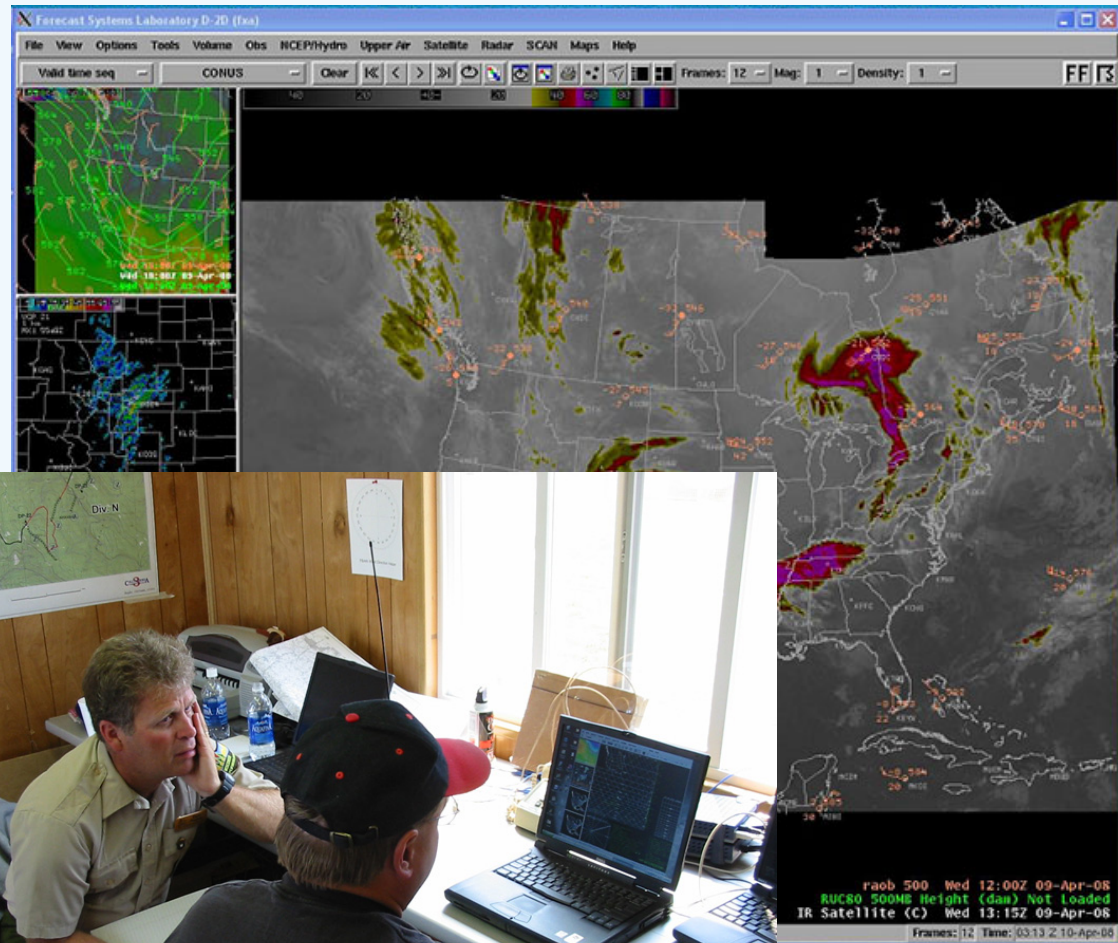
- Forecasts defined more precisely in space and time
 - 2.5 – 5 kilometer resolution for ~20 weather elements
- Automatic text product generation
 - Far less typing, more time to focus on meteorology
- Provides for better forecast products and services
 - Point and Click, Image, Time-Series
- Quotes . . .
 - From a WFO Forecaster, “...you have set a bar by which all other support and development organizations will be judged by the field.”
 - From the Australian Bureau of Meteorology, “This collaborative effort was crucial in adding another success to our ongoing modernization.”





FX-Net

- Remote , 'Thin' Meteorological Workstation for...
 - Wildfires
 - Hazardous Spills
 - Floods
 - Any High-Impact Weather-Related Event



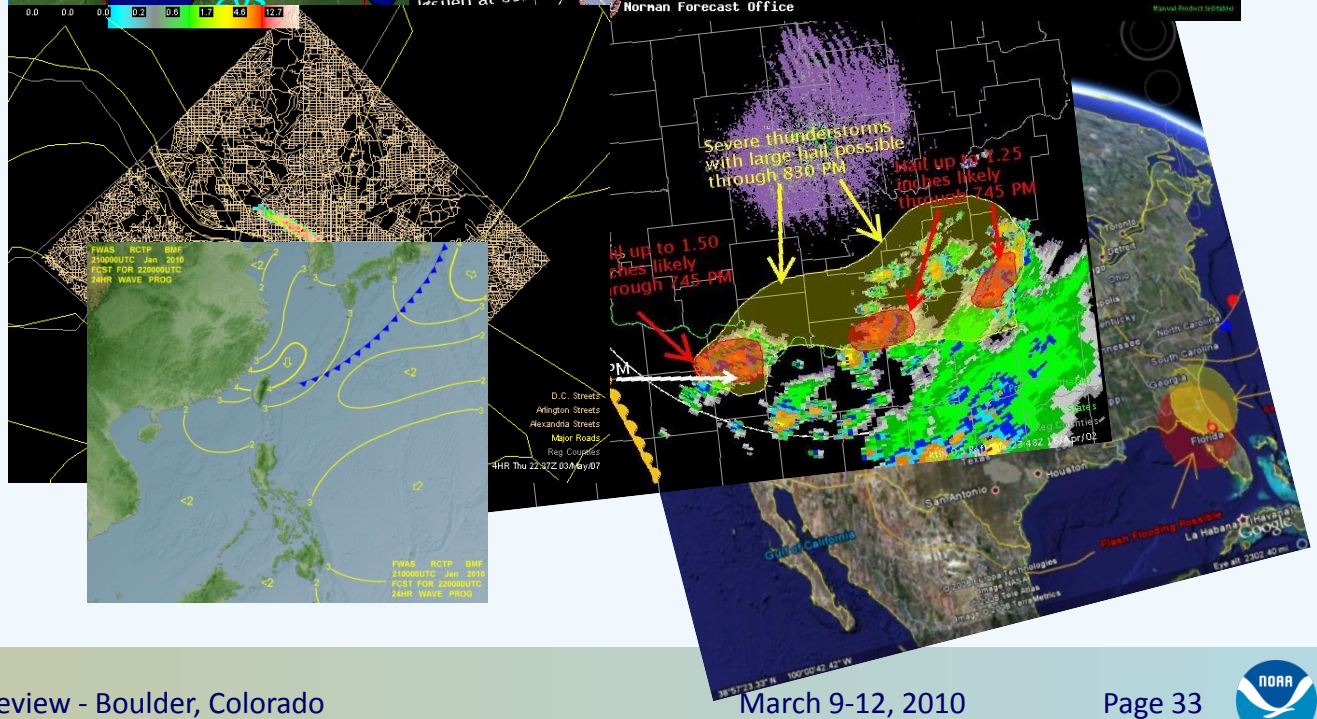
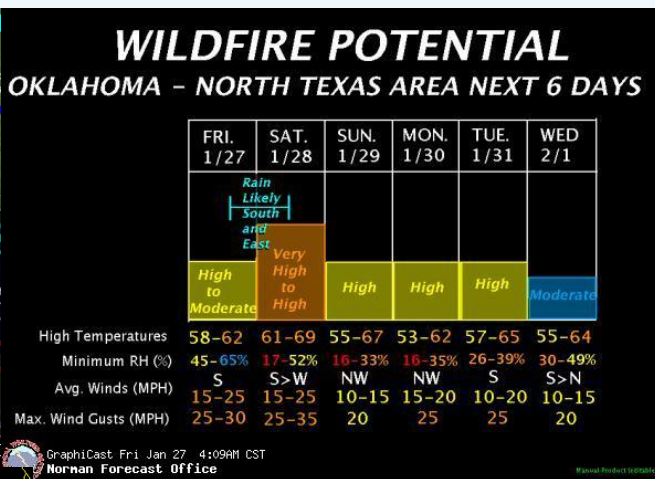
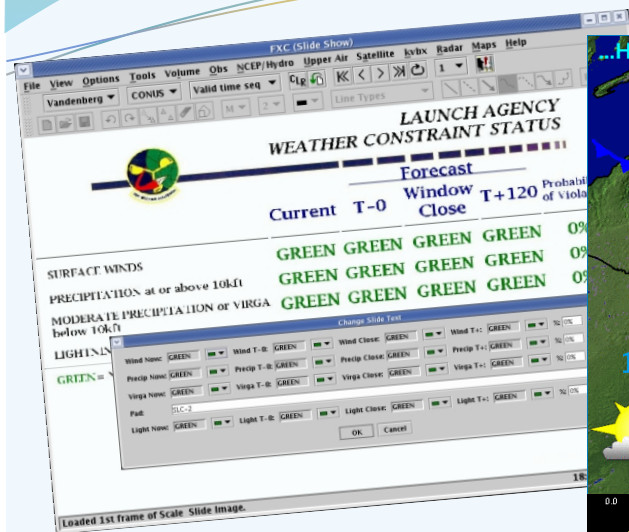


FX-Net - Impacts

- Improved weather services during field operations
 - Delivers high-resolution satellite, radar, observational and weather prediction model data over a low-bandwidth network
 - Enhanced safety for first-responders (e.g., fire fighters)
 - Used by air quality forecasters and researchers to produce air quality forecasts and to study climate variability and air pollution sources
- Quotes from IMETs and NWS fire weather services management ...
 - “The FX-Net system is heavily used. For the IMETS, it’s the most critical system they have.”
 - “The FX-Net system is the ‘backbone’ of fire weather forecasting in the field.”
 - “FX-Net has had a huge impact on improving firefighter safety”.



FX-Collaborate (FX-C)



- Weather Briefings**
- Weather Alerting**
 - Web Graphics
 - R911/CAP (test)
- Weather Charts**
 - CWB Wave Height
- Core for Collaboration**





FX-C - Impacts

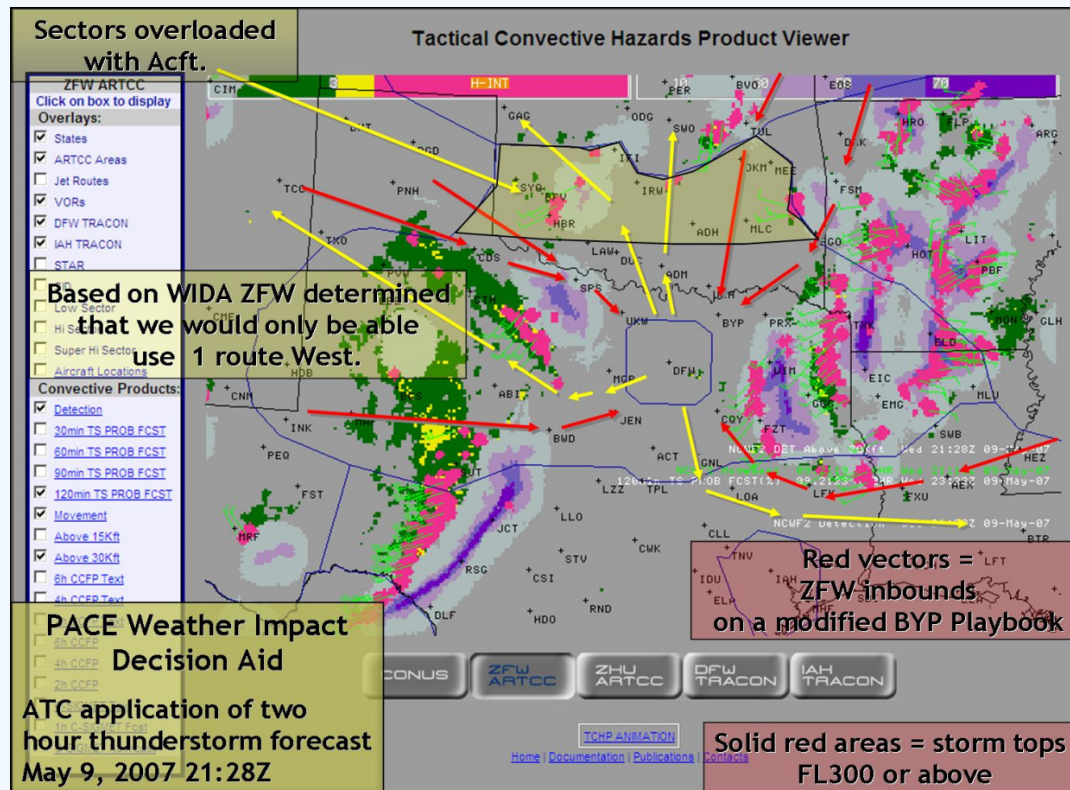
- Improved weather services during field operations
 - Provides latest information on weather hazards to the public
 - Communicates weather launch criteria information to site personnel at USAF/VBAFB prior to a rocket launch
 - Provides ocean wave information to fishermen and others in Taiwan area
- Quote from weather information consumer in Norman, OK
 - “This is the second or third time I have seen this. This is great! Especially with the storms we were having. I can look at your site and tell more then watching all 3 weather casts in the morning news”.





Weather Information Decision Aids (WIDA)

- Weather information Better Integrated into Operational Decisions (based on FX-C)



System used for making operational decisions at Dallas/ Ft. Worth (CWSU)

Transition path is through AWIPS

Technology is being extended to other service areas



Weather Information Decision Aids

- WIDA Impacts
 - Dramatically improved weather display and information for ARTCC TMU.
 - Improved efficiency of Fort Worth ARTCC airspace.
- Quotes from TMU Traffic Manager . . .
 - “ZFW TMU strongly supports the WIDA convective weather forecast tools used at ZFW.”
 - “WIDA was a significant factor in making good tactical and strategic decisions...”



Summary

Many technologies are derived from AWIPS services

